

APPARATUS AND METHOD FOR TESTING INFRARED FUNCTIONS

FIELD OF THE INVENTION

5 The present invention relates to an apparatus and method for testing infrared functions of infrared transceiver modules that is equipped with an infrared transmission capability.

BACKGROUND OF THE INVENTION

Nowadays an infrared function has become a highly desirable factor in the selection 10 of electronic instruments. Hence most electronic instruments now are equipped with an infrared transceiver module.

However, during testing of the infrared transceiver module, the infrared transceiver module is often installed on an electronic instrument, then infrared functional tests are performed. Hence two sets of electronic instruments are required to do infrared 15 functional tests. As a result, time needed for infrared functional tests increases, and test costs are higher. There is a negative impact on the production yields of the infrared transceiver module.

SUMMARY OF THE INVENTION

20 Therefore, the primary object of the invention is to provide an apparatus and method for testing infrared functions, to shorten test time of infrared transceiver modules, reduce test costs, and improve production yields of the infrared transceiver modules.

The apparatus and method for testing infrared functions according to the invention is for testing infrared functions of infrared transceiver modules that is equipped with an

infrared transmission capability. The apparatus includes a processor, an infrared test module, a targeted test module and a display device.

The processor emits test signals. The infrared test module is connected to the processor to receive infrared signals (including infrared tested signals and infrared result signals). The tested module receives the installation of the infrared transceiver module and test. After having received the test signals, it emits the infrared tested signals. It includes a transceiver and a controller to respectively emit the infrared tested signals and receive the infrared result signals, and controls receiving and emitting of the infrared tested signals, infrared result signals, and test signals. The targeted test module is for installation and test of an infrared transceiver module, and is connected to the infrared test module to receive the infrared tested signals and test the infrared transceiver. The targeted test module transmits the infrared result signals back to the processor through the infrared test module. The display device also is connected to the processor to receive the infrared result signals for displaying.

When the invention is in use, first, the processor emits test signals; the transceiver of the infrared test module receives the test signals, and transfers to the controller. The controller actuates the transceiver to emit infrared tested signals. The targeted test module receives the infrared tested signals, tests the infrared transceiver module, and sends back infrared result signals. The transceiver of the infrared test module receives the infrared result signals, and through controlling of the controller, sends the infrared result signals back to the processor; the processor then transfers the infrared result signals to the display device for displaying.

By means of the process set forth above, during the test process, it is not necessary to install the infrared transceiver module that has infrared transmission capability on the electronic instrument. Tests may be performed without the infrared transceiver module installed on the electronic instrument. As a result, the test time of the infrared

transceiver module may be reduced, test costs are lower, and production yields of the infrared transceiver module may increase.

The foregoing, as well as additional objects, features and advantages of the invention will be more readily apparent from the following detailed description, which proceeds with reference to the accompanying drawings.

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BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a structure block diagram of the invention.

FIGS. 2A and 2B are process flow charts of the invention.

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DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIG. 1, the apparatus and method for testing infrared functions of an infrared transceiver module according to the invention includes a processor 10, an infrared test module 20, a targeted test module 30, a display device 40 and an actuator

15 50.

The processor 10 is for emitting test signals. The infrared test module 20 is connected to the processor 10 to receive and transmit infrared signals (including infrared tested signals and infrared result signals). After having received the test signals, it emits the infrared tested signals. It includes a transceiver 21 and a controller 22 to respectively

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emit the infrared tested signals and receive the infrared result signals, and controls receiving and emitting of the infrared tested signals, infrared result signals, and test signals. The targeted test module 30 is for the installation of, and testing an infrared transceiver module, and is connected to the infrared test module to test the infrared transceiver module after having received the infrared tested signals. It transmits the

infrared result signals back to the processor 10 through the infrared test module 20. It also is connected to the processor 10 to receive the infrared result signals for displaying.

The targeted test module 30 is connected to the processor 10. After the infrared transceiver module is installed on the targeted test module 30, the targeted test module 5 30 transmits the data of the infrared transceiver module to the display device 40 through the processor 10 for displaying. The data of the infrared transceiver module include name, department, versions, manufacture date, and developer's names of the apparatus, and the like.

10 The actuator 50 is connected to the processor 10 to drive the processor 10 to emit the test signals when actuated.

Thus to use the invention, the infrared transceiver module that has infrared transmission capability must be installed on the targeted test module 30 first. The targeted test module 30 transmits the data of the infrared transceiver module to the processor 10. The processor 10 transmits the data of the infrared transceiver module to 15 the display device 40, to display. Then the actuator 50 is started to drive the processor 10, to emit test signals. The receiver 21 of the infrared test module 20 receives the test signals, and transmits to the controller 22. The controller 22 actuates the receiver 21 to emit infrared tested signals. The target test module 30 receives the infrared tested signals and tests the infrared transceiver module, and transmits the infrared result 20 signals back to the processor 10. Hence the processor 10 can transmit the infrared result signals to the display device 40 for displaying.

25 By means of the apparatus set forth above, during the test process, it is not necessary to install first the infrared transceiver module that has infrared transmission capability on the electronic instrument. The test can be performed without having the infrared transceiver module installed on the electronic instrument. As a result, the test time of the infrared transceiver module can be reduced, test costs are lower, and production yields

of the infrared transceiver module may increase.

Refer to FIGS. 2A and 2B for the method of testing infrared functions according to the invention. The method includes the steps as follow:

5 Install an infrared transceiver module that is equipped with an infrared transmission capability on a targeted test module (step 101).

The targeted test module sends data of the infrared transceiver module to a processor (step 102).

The processor transfers the data of the infrared transceiver module to a display device for displaying (step 103).

10 Activate an actuator to drive the processor to emit test signals (step 104).

A transceiver of an infrared test module receives the test signals and transmits to a controller (step 105).

The controller actuates the transceiver to emit infrared tested signals (step 106):

The tested module receives the infrared tested signals (step 107).

15 The tested module tests the infrared transceiver module, and sends back infrared result signals to the transceiver of the infrared test module (step 108).

The transceiver of the infrared test module receives the infrared result signals (step 109).

20 The controller controls the infrared result signals and sends back the processor (step 110).

The processor sends the infrared result signals to the display device for displaying (step 111).

Through the process set forth above, during the test process, it is not necessary to install first the infrared transceiver module that has infrared transmission capability on

the electronic instrument. Tests can be performed without having the infrared transceiver module installed on the electronic instrument. As a result, the test time needed for the infrared transceiver module can be reduced, test costs are lower, and production yields of the infrared transceiver module may increase.

- 5 While the preferred embodiments of the invention have been set forth for the purpose of disclosure, modifications of the disclosed embodiments of the invention as well as other embodiments thereof may occur to those skilled in the art. Accordingly, the appended claims are intended to cover all embodiments, which do not depart from the spirit and scope of the invention.